Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] 1.A ball-actuated optical mouse comprising:
a housing, said housing comprising a base, said base comprising an upright open chamber, a top cover covered on a top side of said base, said top cover comprising a plurality of operation buttons, and an annular bottom cap covered on a bottom side of said base corresponding to a bottom side of said upright open chamber;
a ball and roller unit mounted in said base inside said housing, said ball and roller unit comprising a ball mounted inside said upright open chamber and partially peripherally protruding over said annular bottom cap for friction contact with a flat surface; and
an optical unit mounted inside said housing and adapted to detect the direction and amount of movement of said ball in said upright open chamber, said optical unit comprising a circuit board supported on said base, a light source controlled by said circuit board to emit light toward said ball, an image sensor adapted to pick up reflected light from said ball and to convert received reflected light into an electric signal indicative of direction and amount of movement of said ball in said upright

open chamber, and a refractor adapted to refract light from said light source onto said ball and to focus reflected light from said ball onto said image sensor.

[c2] 2. The ball-actuated optical mouse as claimed in claim 1, wherein said base comprises a plurality of upright supports that support said circuit board above said upright open chamber.

[c3] 3. The ball-actuated optical mouse as claimed in claim 1, wherein said circuit board has an opening; said image sensor is installed in said circuit board above said opening.

[c4] 4. The ball-actuated optical mouse as claimed in claim 1, wherein said ball and roller unit further comprises a plurality of rollers pivotally mounted in said base inside said housing and respectively peripherally maintained in friction contact with said ball.

[c5] 5.The ball-actuated optical mouse as claimed in claim 4, wherein said optical unit further comprises a sensor switch electrically connected to said circuit board and adapted to detect the operation of said rollers and to drive said circuit board to control power supply to said light source subject to the operation status of said rollers.